

# **REQUEST FOR PROPOSALS**

## **MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) 2002 REGIONAL TRAVEL SPEED STUDY**

Maricopa Association of Governments  
March 18, 2002

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## REQUEST FOR PROPOSALS

### MARICOPA ASSOCIATION OF GOVERNMENTS

The Maricopa Association of Governments (MAG) is requesting proposals from qualified consultants to undertake a 2002 MAG Regional Travel Speed Study. The purpose of the study is to collect travel time data along major arterials and freeways using GPS, and to compare the current travel speeds with historical data. Also, the travel speeds and delay are to be evaluated by time period and city. The estimated time frame for this project is 12 months from the date of the notice to proceed and the cost is not to exceed \$300,000.

Detailed proposal requirements may be obtained by contacting the MAG Office at the address indicated below or by visiting the MAG Website at <http://www.mag.maricopa.gov>. Please click on "About MAG" and then click on "RFPs". For further information please contact Ratna Korepella at (602) 254-6300 or email to [rkorepella@mag.maricopa.gov](mailto:rkorepella@mag.maricopa.gov).

Proposals will be accepted until 12:00 noon (Mountain Standard Time) on Tuesday, April 23, 2002, at MAG, third floor, 302 North 1<sup>st</sup> Avenue, Phoenix, Arizona 85003

# **SCOPE OF WORK**

## **BACKGROUND**

The Maricopa Association of Governments (MAG) is the designated Metropolitan Planning Organization (MPO) in the Phoenix area. MAG is comprised of the 24 incorporated cities and towns, plus the County, the Gila River Indian Tribe and the Salt River Indian Tribe within Maricopa Region. For transportation issues, MAG strives to identify and compressively plan for the solution of regional problems requiring multi-city, town and county cooperation.

Over the past decade, explosive demographic growth, coupled with extensive freeway construction, has altered the Phoenix regional travel patterns significantly. Traffic congestion is a growing problem in the metropolitan Phoenix area. The last comprehensive travel time study for the MAG region was conducted in the Spring of 1993. In the eight years since then, the region has continued its rapid growth and numerous roadway improvements have been completed.

Prior to 1993, regional travel speed surveys were conducted in 1957, 1962, 1966, 1970, 1976, 1979 and 1986. These studies provide a solid base for comparison. This study will be used to compare the travel speeds currently provided by the region's freeways and arterials with historical data for this region and current data from other regions. In addition, this study will document approach delay at major intersections

The accuracy of speed data has become important to the annual process of determining the conformity of transportation plans to state and federal air quality implementation plans. In October 1992, the Federal Highway Administration and the Environmental Protection Agency (EPA) informed the Arizona Department of Transportation (ADOT) of the need to incorporate speeds into the regional transportation model that reflect actual speed data. This project will directly address this point.

## **PROJECT SUMMARY AND DESCRIPTION**

This travel speed study consists of collecting data and presenting information describing automobile travel speeds and delays on major metropolitan streets and highways. There are two reasons for doing this.

First, travel speed is a direct measure of the performance of the roadway network. Low speeds are an indication of congestion, delay, loss of time by drivers, increased fuel use and increased pollution emissions. Decreasing auto travel speeds may signal a need for increased road or transit capacity, or for greater attention to travel demand management. The Region's Congestion Management System (CMS) monitors the performance of the transportation system to alert decision-makers of progress toward meeting congestion and mobility goals. Travel speed surveys are an important component of the CMS.

Second, automobile speed data is an important input to calibrate the forecasting models for land use, travel and air quality. Forecasts from each of these models are sensitive to travel time data. Recently planners have become more interested in improving the quality of the input travel speed data and the ability of the models to estimate travel speeds. This study will allow MAG to update the current travel time inputs, and it will provide a database for future improvements to the travel demand models.

The specific objectives of this study are:

- Collect data on weekday morning peak, evening peak, and off peak automobile travel speeds for major urban area freeways and arterials.
- Collect traffic delay at each approach of major intersections.
- Compute peak period and free flow speeds by facility type and area type for use in the MAG travel demand models.
- Evaluate and document existing automobile travel speeds and times and to compare them with the results of earlier studies.

The estimated time frame for this study is 12 months, and the cost is not to exceed \$300,000.

## **SCOPE OF SERVICE**

The CONSULTANT is encouraged to be creative in developing a sound analytical approach, which achieves the goals for the project. The CONSULTANT is urged to be as specific as possible when describing the activities that will be performed to support each task. In preparing a proposal for consideration by MAG, the CONSULTANT is encouraged to be innovative when specifying the work that will be done under the proposed tasks below. The services to be performed shall consist of the following tasks:

### **Task One: Travel Speed Survey Design**

The consultant will prepare and submit to MAG for review a detailed Travel Speed Survey Design. It is desired that 8 travel time runs be made in each direction of travel for the a.m. and p.m. peak period times and 3 travel time runs be made in each direction for the midday period. The periods will be defined as midday (9 a.m. to 11.a.m), morning (6.30 a.m. to 8.30 a.m.) and evening (4 p.m. to 6.p.m.). The “floating car” procedure described in the Manual of Traffic Engineering Studies will be used to determine the speed of the instrumented vehicle. We anticipate that this study will cover about 2643 directional miles of arterials, 402 directional miles of freeway and 95 lane miles of HOV lanes.

The Survey Design will include:

- A map of the routes and intersections to be surveyed, and a description of how they are chosen.
- A list of route segments (the desired list of route segments is defined in Appendix F), time periods and travel directions to be sampled. The consultant will report data separately for each route segment. The minimum segment length will be defined in terms of traffic control devices.
- An explanation of how many runs will be made and length.
- A precise description of how data will be collected.
- The run length should be limited to about 15 minutes.
- Precise definitions of data variables and time periods.
- Definitions of what circumstances would cause cancellation of a speed run, or discarding of collected data.
- Description of how construction and traffic incidents will be handled in the survey.
- Descriptions of how data collectors are chosen and trained.
- Description of how traffic volumes and other descriptive variables will be estimated or collected for each route segment.
- Description of how run start times are chosen so that the travel time data is evenly through the entire time period for all the route segments.
- Any other significant procedural information.

The Quality Control Plan may also be included in the Survey Design. The consultant will submit four copies of the draft Survey Design to the MAG project manager for review. Upon approval, the consultant will submit one final copy and a camera-ready copy of the Survey Design and proceed with Task Two.

### **Task Two: Collect Automobile Travel Time Data**

After approval of the Survey Design by the MAG project manager, the consultant will collect travel speed data following the procedures included in the Survey Design. It is desired that data will be collected on Tuesday, Wednesday and Thursday but not during holidays. Data will be collected separately for each time period and each route segment. Data will be collected for both

directions of travel unless otherwise specified in the Survey Design. The minimum segment length will be defined in terms of traffic signals and stop signs. Data to be collected for each route segment for each time period and direction should include:

- Street name (including prefix and suffix).
- Beginning cross Street and ending cross street (including prefix and suffix).
- Jurisdiction.
- Facility Type (Freeway, Arterial or Collector).
- Area Type (MAG travel model definition).
- Number of through lanes and turns at major intersections.
- Length.
- Estimated hourly traffic volume for time period of data collection.
- Average travel time.
- Delay, by source.
- Average travel speed.
- Number of data collection runs.
- Speed Limit.

The consultant will enter the resulting data into a computer database and submit summary level segment it to MAG on diskettes in a mutually agreed format. The consultant will provide weekly project reports to MAG during the data collection period summarizing what data was collected during the week, what data still needs to be collected, any data which was collected but discarded, and any problems encountered that week.

### **Task Three: Report Intersection Delay Data**

It is desired that delay be reported by approach, for major intersection and also by the length of congestion for the A.M. and the P.M. peak period. It is also required to document the number of through and turn lanes for each approach of major intersections in the study area.

The consultant will enter the resulting data into a computer database and submit an electronic copy to MAG in a mutually agreed format. The consultant will provide weekly project reports to MAG during the data collection period summarizing what data was collected, what data still

needs to be collected, any data which was collected but discarded, and any problems encountered that week.

#### **Task Four: Prepare Summary Tables**

The consultant will prepare the following summary tables and submit them to MAG.

1. Average morning peak period travel speed by design class, area type and number of lanes.
2. Average midday travel speed by design class, area type and number of lanes.
3. Average evening peak period travel speed by design class, area type and number of lanes.
4. Average “free-flow” speeds by design class, area type and number of lanes.
5. Average delay between major intersections per mile by time period, design class, area type and type of delay (recurring or nonrecurring).
6. Average running speed by time period, design class and area type.
7. Speed limits.

Table 1 through 4 will be used to update travel speeds in the MAG travel demand models. The consultant will submit a draft working paper for review containing these summary tables and methodology. Following review, the consultant will submit a final working paper.

#### **Task Five: Prepare Draft Report**

The consultant will prepare and submit to MAG a draft report summarizing the survey results, comparing them with earlier studies, and evaluating the changes over time. For consistency with the 1993 study, the report will include the following maps:

1. Delay at intersection approaches for each time period.
2. Average travel speed for each time period.
3. Running speed for each time period, where running speed does not include delay time.
4. Delay for each time period.
5. Isochronal maps of midday and afternoon peak period travel time from Central Avenue/Van Buren Street and Sky Harbor International Airport.
6. Changes in travel speeds from 1979 to 2002, 1986 to 2002 and 1993 to 2002.



The consultant will include tables of point-to-point travel time, speed and delay for trips between the following CBD's:

Avondale/Goodyear	(Yuma Rd and Litchfield Rd)
Chandler	(Chandler Blvd and Arizona Ave)
Gilbert	(Gilbert Rd and Elliot Rd)
Glendale	(Glendale Ave and 59 <sup>th</sup> Ave)
Mesa	(Main St. and Center St)
Peoria	(Peoria Ave and 83 <sup>rd</sup> Ave)
Phoenix	(2 <sup>nd</sup> Ave and Washington St.)
Scottsdale	(Scottsdale Rd and Indian School Rd)
Sky Harbor	(Terminal 3 and Sky Harbor Blvd)
Sun City	(107 <sup>th</sup> Ave and Grand Ave)
Tempe	(University Dr. and Mill Ave)

The report will include average p.m. peak period travel speeds and delays by jurisdiction. This includes comparison with previous years. In addition, the draft report will include tables or graphs of travel speed, running speed, and delay per mile by time period, jurisdiction, functional class and area type. The report will also include whatever other tables and analysis that the consultant believes to be significant in explaining the changing pattern of travel speeds over time.

The consultant will include an executive summary in the draft report. The executive summary will be prepared for general reading. It will be no more than 15 pages and include graphs, charts and tables. The executive summary should be considered the priority document from this study, and therefore, it will require significant emphasis.

Four copies of the initial draft will be submitted to the MAG project manager. The consultant will incorporate review comments and submit 40 bound copies of the draft report, with complete graphics and executive summary.

### **Task Six: Final Report**

Following review of the draft report, the consultant will revise the draft and submit 100 copies of the final report, with executive summary. A pdf version of the final report and executive summary will also be produced. A final draft copy will be submitted to MAG for review prior to printing.

### **DELIVERABLE PRODUCTS**

The consultant's project manager should allow for up to five public presentations, including presentations to MAG committees. Other meetings should take place with the MAG project manager, MAG staff and other coordinating agencies as needed. The consultant should allocate resources to prepare quality public presentations.

The expected products of this study are:

- i. Four draft copies and one final copy and a camera-ready copy of the Survey Design.
- ii. Weekly progress reports during period of data collection describing process and problems in collecting data.
- iii. A computer-readable database of travel speed data in a mutually agreed upon format.
- iv. A computer-readable database of intersection approach delay data in a mutually agreed upon format.
- v. One draft copy and one final copy and a camera-ready copy of a working paper for Task 4.
- vi. Four copies of an initial draft report.
- vii. Forty (40) copies of a draft report, including complete graphics and executive summary.
- viii. Electronic copy of report in Microsoft Word or Word Perfect plus pdf version of the report.
- ix. Monthly progress reports (See other requirements in proposal requirements section).

### **QUALITY CONTROL PLAN**

Data accuracy is the most important concern of any data collection project, and this is primarily a data collection project. Therefore, a Quality Control Plan is requested as part of the project proposal. The Quality Control Plan will be included in the scope of services for this project. It should cover the collection of travel speed time data and intersection delay data.

The Quality Control Plan could include procedures for choosing, training and monitoring data collectors, improving the accuracy of data collection, checking data entry, and checking the accuracy of the resulting database. Note that there are several types of data to collect. These may include travel speed time data, number of through lanes, design class, and speed limit.

Street and cross street names will be used by MAG to geocode the databases, so take care to assure that correct names and conventions are used.

## **PROPOSAL REQUIREMENTS**

### **PROJECT SCHEDULE**

The date of the notice to proceed is anticipated to be about August 1, 2002. A complete draft of this project report shall be submitted 12 months from the date of the notice to proceed.

### **PROPOSAL DELIVERY**

1. Ten (10) copies of the proposal must be submitted by **12:00 noon** (Mountain Standard Time) on **Tuesday, April 23, 2002** to:

Maricopa Association of Governments  
Attention: Ratna Korepella  
302 North 1<sup>st</sup> Avenue, Third Floor  
Phoenix, Arizona 85003

Timely receipt of proposals will be determined by the date and time the proposal is received at the above address. Therefore, hand delivery is encouraged to assure timely receipt.

The proposals received by the deadline noted above will be opened publicly and the name of each respondent submitting will be read at **1:00 pm on Tuesday, April 23, 2001** at the MAG Offices, Suite 200, Ocotillo Room, 302 North 1<sup>st</sup> Avenue, Phoenix, Arizona 85003.

All material submitted in response to this solicitation becomes the property of MAG and will not be returned.

2. Any questions regarding this Request for Proposals should be directed to the attention of Ratna Korepella at MAG, 302 North 1<sup>st</sup> Avenue, Suite 300, Phoenix, Arizona 85003, or by telephone at (602) 254-6300. The MAG fax number is (602) 254-6490 and questions can be posed electronically at [rkorepella@mag.maricopa.gov](mailto:rkorepella@mag.maricopa.gov)
3. A proposers conference for the project has been scheduled for **Tuesday, April 9, 2002**, at 9:30am in the Saguaro Room at the MAG Office, Suite 200, 302 North 1<sup>st</sup> Avenue, Phoenix, Arizona.

### **PROPOSAL CONTENT**

It is required that the proposal:

1. The proposal will include cover letter, résumés, and appendices. The cover letter must be signed by a party authorized to bind the entity submitting the proposal.

2. Be prefaced by a brief statement describing the proposer's organization and outlining its approach to completing the work required by this solicitation. This statement should illustrate the proposer's overall understanding of the project.
3. Contain a work plan, which concisely explains how the CONSULTANT will carry out the objectives of the project. In the work plan, the proposer should describe each project task and proposed approach to the task as clearly and thoroughly as possible.
4. Include a preliminary schedule for the project in bar-chart format. Indicate all work plan tasks and their durations.
5. Contain a staffing plan for the project. The plan should include the following in table format:
  - a. A project organization chart, identifying the project manager.
  - b. Names of key project team members and/or subconsultants. Only those personnel who will be working directly on the project should be cited.
  - c. The role and responsibility of each team member.
  - d. Percent effort (time) of each team member for the contract period.
  - e. The role and level of MAG technical staff support, if any.
6. The Disadvantaged Business Enterprise (DBE) participation goal for this proposal is 11 percent. DBEs proposed are required to be certified by ADOT or the City of Phoenix. Each proposal shall include the following information to meet the DBE requirements:
  - a. A clear and concise description of the work that each DBE will perform; and
  - b. The dollar amount of the participation of each DBE firm participating; or
  - c. If the 11 percent goal is not met, evidence of good faith efforts to meet the goal.
7. Include résumés for major staff members assigned to the project. These résumés should focus on their experience in this type of project.
8. Each firm submitting a proposal is required to certify that it will comply with, in all respects, the rules of professional conduct set forth in A.C.R.R. R4-30-301 (see Appendix A), which is the official compilation of Administrative Rules and Regulations for the State of Arizona.
9. Include proposer's recent experience (last five years) in performing work similar to that anticipated herein. This description shall include the following:
  - a. Date of project.
  - b. Name and address of client organization.

- c. Name and telephone number of individual in the client organization who is familiar with the project.
  - d. Short description of project.
  - e. CONSULTANT team members involved and their roles.
- 10. A labor cost allocation budget formatted as noted in Appendix B.
- 11. All firms proposing on this project will be required to include a “*Proposer’s Registration Form*” (See Appendix C) in the submitted proposal. In addition, a “*Proposer’s Registration Form*” is required to be included for each subcontractor proposed for this project.
- 12. Each firm shall document within its proposal any potential conflicts of interest. A conflict of interest shall be cause for disqualifying a CONSULTANT from consideration. A potential conflict of interest includes, but is not limited to:
  - a. Accepting an assignment where duty to the client would conflict with the CONSULTANT’S personal interest, or interest of another client.
  - b. Performing work for a client or having an interest which conflicts with this contract.
  - c. Employing personnel who worked for MAG or one of its member agencies within the past three years.

MAG will be the final determining body as to whether a conflict of interest exists.

## **PROPOSAL EVALUATION AND SELECTION PROCESS**

1. All proposals will be evaluated by an evaluation group. Evaluation criteria include the following:
  - a. Demonstrated understanding of the project through a well-defined work plan consistent with program objectives.
  - b. Clarity of proposal, realistic approach, technical soundness, and enhancements to elements outlined in this Request for Proposals.
  - c. Experience of Project Manager and other project personnel in similar studies. Only those personnel assigned to work directly on the project should be cited.
  - d. Proven track record in this area of study. Proposers should identify the principal people who worked on past projects and the amount of time they devoted to the work effort.
  - e. Availability of key personnel throughout the project effort.
  - f. Ability and commitment to complete the project within the specified time period, meet all deadlines for submitting associated work products, and insure quality control.
  - g. Recognition of work priorities and flexibility to deal with change and contingencies.
2. On the basis of the above evaluation criteria, selected firms submitting proposals may be interviewed prior to the selection of a CONSULTANT. MAG strongly suggests that the Project Manager and key members of the CONSULTANT team be present at the interview.
3. The Maricopa Association of Governments may conduct discussions with offerors who submit proposals determined to be reasonably susceptible of being selected for award.
4. The Maricopa Association of Governments reserves the right to:
  - a. Cancel this solicitation.
  - b. Reject any and all proposals and re-advertise.
  - c. Select the proposal(s) that, in its judgment, will best meet its needs.
  - d. Negotiate a contract that covers selected parts of a proposal, or a contract that will be interrupted for a period or terminated for lack of funds.

## **ADMINISTRATIVE REQUIREMENTS**

1. This Request for Proposals is for a cost-reimbursement plus fixed fee contract.
  2. During the course of the project, a monthly progress report is required to be submitted within ten (10) working days after the end of each month until the final report is submitted. Each report shall include a comprehensive narrative of the activities performed during the month, an estimated percent complete for each project task, monthly and cumulative costs by task, activities of any subcontractors, payments to any subcontractors, a discussion of any notable issues or problems being addressed, and a discussion of anticipated activities for the next month (See Appendix D for format).
  3. MAG shall retain ten percent (10%) of the contract amount, withheld from each invoice, as final payment until completion of the project to the satisfaction and acceptance of the work. Final payment shall be made after acceptance of the final product and invoice.
  4. An audit examination of the CONSULTANT'S records may be required.
  5. The firm that is selected will be required to comply with Titles VI and VII of the Civil Rights Act of 1964. The contractor will comply with Executive Order 11246, entitled Equal Employment Opportunity, as amended by Executive Order 11375 and as supplemented in Department of Labor Regulations (41 CFR Part 60). The contractor will also be required to comply with all applicable laws and regulations of the U.S. Department of Transportation.
  6. The firm selected will be required to comply with MAG insurance requirements, which may include: Workmen's Compensation, Architects and Engineers Professional Liability insurance, Comprehensive General Liability insurance, Business Automobile Liability insurance, and Valuable Papers insurance.
  7. The firm selected is required to document any potential conflicts of interest during the contract period. A conflict of interest shall be cause for terminating a contract. A potential conflict of interest includes, but is not limited to:
    - a. Accepting an assignment where duty to the client would conflict with the CONSULTANT'S personal interest, or interest of another client.
    - b. Performing work for a client or having an interest which conflicts with this contract.
    - c. Employing personnel who worked for MAG or one of its member agencies within the past three years.
- MAG will be the final determining body as to whether a conflict of interest exists.
8. The firm that is selected will be required to comply with the MAG Disadvantaged Business Enterprise (DBE) Program requirements. The annual overall DBE goal is 11 percent. See Appendix E for a summary of "MAG's Key DBE Regulatory

Requirements.” A complete copy of MAG’s DBE Program is available on the MAG website at [www.mag.maricopa.gov](http://www.mag.maricopa.gov).

9. The firm that is selected to undertake the Regional Wide Area Network Study will be precluded from proposing on the implementation of the Regional Wide Area Network to avoid any conflict of interest or the appearance of a conflict of interest.



## **APPENDIX A**

### **ARIZONA ADMINISTRATIVE CODE R4-30-301**

## ARTICLE 3. REGULATORY PROVISION

## R4-30-301. Rules of professional conduct:

- A. All registrants shall comply substantially with the following standards of professional conduct:
1. A registrant shall not submit any materially false statements or fail to disclose any material facts requested in connection with his application for certification.
  2. A registrant shall not engage in fraud, deceit, misrepresentation, or concealment of material facts in advertising, soliciting, or providing professional services to members of the public.
  3. A registrant shall not knowingly sign, stamp, or seal any plans, drawings, blueprints, land surveys, reports, specifications, or other documents not prepared by the registrant or his bona fide employee.
  4. A registrant shall not knowingly commit bribery of a public servant as proscribed in A.R.S. 13-2602, or knowingly commit commercial bribery as proscribed in A.R.S. 13-2605, or violate any Federal statute concerning bribery.
  5. A registrant shall comply with all Federal, State, and local building, fire, safety, real estate, and mining codes, and any other laws, codes, ordinances, or regulations pertaining to the registrant's professional practice.
  6. A registrant shall not violate any State or Federal criminal statute involving fraud, misrepresentation, embezzlement, theft, forgery, or breach of fiduciary duty, where the violation is related to the registrant's professional practice.
  7. A registrant shall apply the technical knowledge and skill which would be applied by other qualified registrants who practice the same profession; a contemporary "Manual of Surveying Instructions" issued by the Bureau of Land Management, United States Department of Interior and in effect prior to May 23, 1983 to the extent applicable to that professional engagement.
  8. A registrant shall not accept an assignment where the duty to a client or the public would conflict with the registrant's personal interest or the interest of another client without full disclosure of all material facts of the conflict to each person who might be related to or affected by the project or engagement in question.
  9. A registrant shall not accept compensation for services related to the same project or professional engagement for more than one party without making full

disclosure to all such parties and obtaining the express written consent of all parties involved.

10. Except as provided in Paragraph 11 of this rule, a registrant shall not accept any professional engagement or assignment outside his professional registration unless:
  - a. He is qualified by education, technical knowledge, or experience to perform such work, and
  - b. Such work is both necessary and incidental to the work of his profession on that specific engagement or assignment.

A registered professional engineer may accept professional engagements or assignments in branches of engineering other than that branch in which he has demonstrated proficiency by registration, but only if he has the education, technical knowledge, or experience to perform such engagements or assignments.

11. Except as otherwise provided by law, code, ordinance, or regulation, a registrant may act as the prime professional for a given project and select collaborating professionals; however, the registrant shall perform only those professional services for which he is qualified by registration to perform and shall seal and sign only the work prepared by him or by his bona fide employee working under his direct supervision.
12. A registrant shall make full disclosure to all parties concerning:
  - a. Any transaction involving payments to any person for the purpose of securing a contract, assignment, or engagement, except for actual and substantial technical assistance in preparing the proposal; or
  - b. Any monetary, financial, or beneficial interest the registrant may hold in a contracting firm or other entity providing goods or services, other than the registrant's professional services, to a project or engagement.
13. A registrant shall not solicit, receive, or accept compensation from material, equipment, or other product or services suppliers for specifying or endorsing their products, goods, or services to any client or other person without full written disclosure to all parties.

8/31/83 Supp. 834

## **APPENDIX B**

### **LABOR COST ALLOCATION BUDGET**

## LABOR COST ALLOCATION BUDGET

### SAMPLE

CONSULTANTS											
Person	Total Hourly Rate	1	2	3	4	5	6	7	8	Total Hours	Total Cost
(NAME)	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$00.00
(NAME)	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$00.00
(NAME)	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$00.00
(NAME)	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$00.00
Total Hours		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$00.00
Total Cost		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Hours Inception to Date		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

REIMBURSABLE EXPENSES		EXPENSES BY TASK									
Description		1	2	3	4	5	6	7	8	Total Cost	
Office Supplies		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Computer Time		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Travel		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Miscellaneous		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
*any other category as needed (e.g., aerial photos)		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Reimbursable Expenses		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	

SUBCONTRACTORS		HOURS BY TASK									
Company		1	2	3	4	5	6	7	8	Total Cost	% of Grand Total
(NAME)		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
(NAME)		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Cost		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Hours Inception to Date		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

GRAND TOTAL		TOTAL COSTS BY TASK									
Description		1	2	3	4	5	6	7	8	Total	
Consultant Cost		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Reimbursable Expenses		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Subcontractors		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Sub-Total		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Fee@	0.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
GRAND TOTAL		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	

## **APPENDIX C**

### **PROPOSER'S REGISTRATION FORM**

## PROPOSER'S REGISTRATION FORM

All firms proposing as prime contractors or subcontractors on Maricopa Association of Governments (MAG) projects are required to be registered. **Please complete this form and return it with your proposal.**

If you have any questions about this registration form, please call Art Rullo, Fiscal Services Manager, (602) 254-6300.

### 1. GENERAL INFORMATION:

Name of Firm:

Street Address:  
City, State, ZIP

Mailing Address:  
City, State, ZIP

Telephone Number:

Fax Number:

E-mail address:

Web address:

Year firm was established:

Check all that apply:

Is this firm a prime consultant? \_\_\_\_\_

Is this firm a sub-consultant? \_\_\_\_\_

Is this firm a certified DBE? \_\_\_\_\_

Is this firm currently debarred? \_\_\_\_\_

Is this firm currently the subject of debarment proceeding? \_\_\_\_\_

Identify specialty: \_\_\_\_\_

If so, by whom? \_\_\_\_\_

### 2. FINANCIAL INFORMATION

Firm's annual gross receipts (average of last 3 years):

\_\_\_\_\_ <\$300,000

\_\_\_\_\_ \$300,000 - \$599,999

\_\_\_\_\_ \$600,000 - \$999,999

\_\_\_\_\_ \$1,000,000 - \$4,999,999

\_\_\_\_\_ >\$5,000,000

Information will be maintained as confidential to the extent allowed by federal and state law.

The undersigned swears that the above information is correct. Any material misrepresentation may be grounds for terminating any contract which may be awarded and initiating action under federal and state laws concerning false statements.

---

Name, Title

---

Date



## **APPENDIX D**

### **PROGRESS REPORT FORMAT**

(Project Costs by Task Format)

(Contractor's Letterhead)

TIN 23-6016952 (TAXPAYER ID NUMBER)

April 15, 1999

IN ACCOUNT WITH: Maricopa Association of Governments  
302 North First Avenue, Suite 300  
Phoenix, Arizona 85003

ATTENTION: MAG Fiscal Services

PROFESSIONAL SERVICES: (NAME OF PROJECT)  
Contract # \_\_\_\_\_ dated (MM/DD/YY)

Project Costs by Task  
(DATE OF INVOICE)

			Estimated Completion To Date			
Task Number	Description	Estimated Task Budget	Percentage	Amount	Amount Previously Billed	Amount This Invoice
1	Data Collection	\$0.00	0%	\$0.00	\$0.00	\$0.00
2	Inventory	\$0.00	0%	\$0.00	\$0.00	\$0.00
3	Forecasts	\$0.00	0%	\$0.00	\$0.00	\$0.00
4	Demand/Capacity Analysis and Facility Requirements	\$0.00	0%	\$0.00	\$0.00	\$0.00
5	Alternatives	\$0.00	0%	\$0.00	\$0.00	\$0.00
6	Evaluation of Alternatives	\$0.00	0%	\$0.00	\$0.00	\$0.00
7	Recommendations	\$0.00	0%	\$0.00	\$0.00	\$0.00
8	Implementation	\$0.00	0%	\$0.00	\$0.00	\$0.00
	TOTAL BUDGET	\$0.00	0%	\$0.00	\$0.00	\$0.00

NOTE: The total amount billed for each task in the task budget cannot exceed 100% of the original budget.  
(Hours and Costs by Task Format)

INVOICE #3  
PERIOD: March 1999

COSTS AND HOURS BY TASK

CONSULTANTS											
Person	Direct Labor Hourly Rate	1	2	3	4	5	6	7	8	Total Hours	Total Cost
(NAME)	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$00.00
(NAME)	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$00.00
(NAME)	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$00.00
(NAME)	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$00.00
Total Hours		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$00.00
Total Cost		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Hours Inception to Date		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

REIMBURSABLE EXPENSES		EXPENSES BY TASK									
Description		1	2	3	4	5	6	7	8	Total Cost	
Postage		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Photocopy/Printing		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Travel		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Telephone		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Miscellaneous		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Aerial Photos		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Reimbursable Expenses		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	

SUBCONTRACTORS		HOURS BY TASK									
Person	Hourly Rate	1	2	3	4	5	6	7	8	Total Hours	Total Cost
(NAME)	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
(NAME)	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
Total Hours		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
Total Cost		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Hours Inception to Date		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

GRAND TOTAL		TOTAL COSTS BY TASK									
Description		1	2	3	4	5	6	7	8	Total	
Consultant Cost		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Consultant Overhead@	1.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Reimbursable Expenses		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Subcontractors		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Sub-Total		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Fee@	0.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
GRAND TOTAL		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	

## **(Progress Report Format - SAMPLE)**

(Consultant's Letterhead)

April 15, 2000

(MAG Project Manager)

Maricopa Association of Governments

302 North First Avenue, Suite 300

Phoenix, Arizona 85003

Re: Progress Report No. 3 and Invoice for the Period of March 2000

*For Each Task, the consultant is to provide the percent of work completed to date, a narrative describing the work accomplished, data obtained, problems encountered, meetings held and reports and/or data produced. It is the responsibility of the consultant to document that the work accomplished for each task during the reporting period is commensurate with the amount of money billed for the task in the invoice.*

*The narrative describing the work accomplished should be of sufficient detail to enable the Project Manager to clearly understand the progress on the task during the reporting period. Wherever possible, the consultant should submit along with the progress report appropriate documentation of work accomplished, such as partial or complete draft technical reports or working papers, etc.*

### **TASK 1 - DATA COLLECTION**

Percent of Work Completed: 100 percent.

Work Accomplished: A database in both hard copy and electronic format was developed and a methodology for keeping the database current was established.

Data Obtained: Information on the transportation facilities was secured for each of the facilities in the study area. The data included, but was not limited to: name, location, and current and historical traffic levels.

Meetings Held: The following meetings were held in connection with the data collection effort:

March 15, 2000, with the MAG project manager to review data collected for the facilities.

March 21, 2000, with the Advisory Committee to obtain input on the data collection process.

March 23, 2000, with MAG staff to review comments on preliminary database.

March 25, 2000, with the public and special interest groups to obtain input on the distribution of the database.

Reports or Data Produced: A database in electronic format was produced and provided to MAG staff on March 29, 2000.

### **(Progress Report Format - SAMPLE)**

#### **TASK 2 - INVENTORY**

Percent of Work Completed: 100 percent.

Work Accomplished: A facilities inventory was completed, and the data obtained in Task 1 were compiled into a Draft Inventory Technical Report for distribution to the Advisory Committee.

Data Obtained: See Task 1.

Meetings Held: The following meetings were held:

March 1, 2000, met with MAG staff to finalize the outline for the Inventory Technical Report.

March 10, 2000, met with the MAG project manager to obtain suggestions on methods for comparing facility information.

Reports or Data Produced: A draft Inventory Technical Report was produced and distributed to members of the Advisory Committee for review and comment.

#### **TASK 3 - FORECASTS**

Percent of Work Completed: 100 percent.

Work Accomplished: Forecasts of travel demand on inventoried facilities were prepared for 2000, 2010 and 2020. The forecasts were consistent with County control totals reviewed by the Advisory Committee last month. The forecasts included a breakdown by facility type.

Data Obtained: See Task 1.

Meetings Held: March 21, 2000, met with MAG staff to discuss comments on preliminary forecast results.

Reports or Data Produced: A draft forecasts report was produced and distributed to members of the Advisory Committee for review and comment.

#### **TASK 4 - DEMAND/CAPACITY ANALYSIS AND FACILITY REQUIREMENTS**

Percent of Work Completed: 60 percent.

Work Accomplished: An hourly capacity was computed for each of the inventoried facilities using the federal guidance provided by MAG staff.

Data Obtained: See Task 1.

Meetings Held: A meeting was held on March 25, 2000 to discuss the differences between the capacity calculations for this study versus previous studies.

#### **(Progress Report Format - SAMPLE)**

Reports or Data Produced: None. However, a draft set of capacity estimates is enclosed documenting the assumptions and data input used to prepare the estimates.

#### **TASK 5- ALTERNATIVES**

Percent of Work Completed: 25 percent.

Work Accomplished: Other regional plans were examined to determine the type of alternatives that were used to meet future demand.

Data Obtained: Regional plans from San Diego, Los Angeles, Denver, Seattle Tucson and Chicago were collected.

Meetings Held: On March 18, 2000, a meeting was held with planners for the Pima Association of Governments to discuss alternatives.

Reports or Data Produced: None.

#### **TASK 6 - EVALUATION OF ALTERNATIVES**

Work on this task has not begun.

#### **TASK 7 - RECOMMENDATIONS**

Work on this task has not begun.

#### **TASK 8 - IMPLEMENTATION**

Work on this task has not begun.

### Problems Encountered

Some of the capacity calculations prepared for the study were different from the capacity calculations used in previous studies. These differences were discussed and resolved at a meeting held with MAG staff on March 25, 2000.

Invoice: The enclosed invoice is for the third progress payment of \$17,679.20. The total amount billed to date is \$48,250.00.

Sincerely,

Project Manager Name  
Project Manager Title

## **APPENDIX E**

### **MAG'S KEY DBE REGULATORY REQUIREMENTS**



## **SUMMARY OF MAG’S KEY DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM REQUIREMENTS FOR CONSULTANT CONTRACTS**

**The Disadvantaged Business Enterprise (DBE) requirements in the Code of Federal Regulations Title 49, Part 26 will apply to this contract.** A complete copy of MAG’s DBE Program is available on the MAG website at [www.mag.maricopa.gov](http://www.mag.maricopa.gov). Please contact MAG Fiscal Services Manager, DBE Liaison Officer, at 602-254-6300 with any questions.

### **DBE Participation Goal and Reporting:**

The DBE participation goal for this contract is 11 percent of the contract award. DBEs used for this contract are required to be certified by the Arizona Department of Transportation or the City of Phoenix prior to the award of the contract. A list of Certified DBE organizations is available at the Civil Rights Office of the Arizona Department of Transportation (602-712-7761) or the City of Phoenix, Equal Opportunity Department (602-262-6790).

The CONSULTANT will be required to report monthly on:

- (1) the utilization of any subcontractors (DBE and Non-DBEs), number of hours worked, and costs incurred; and
- (2) any payments made to subcontractors (DBEs and non-DBEs).

### **Contractor and Subcontractor Assurance:**

MAG will incorporate into each contract it signs with a Prime Contractor, and require in each subcontract (that a Prime Contractor signs with a Subcontractor), the following assurance:

“The Contractor, Subrecipient or Subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of USDOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as MAG deems appropriate.”

### **Prompt Payment Provision:**

“The Prime Contractor will pay Subcontractors for satisfactory performance of contracts no later than fourteen (14) calendar days from the date that the Prime Contractor receives payment from MAG. The Prime Contractor will also return retention payments to the Subcontractor within fourteen (14) calendar days from the date of satisfactory completion of work.”

### **Prime Contractors Shall:**

- Provide the Subcontractor with the name, address and phone number of the person to whom all invoices/billings and statements shall be sent.
- Pay Subcontractors and suppliers within fourteen (14) days of receipt of payment from MAG.

- Stipulate the reason(s) in writing to the subcontractor and to MAG for not abiding by the prompt payment provision. Some possible reasons include:
  1. Failure to provide all required documentation
  2. Unsatisfactory job performance
  3. Disputed work
  4. Failure to comply with other material provisions of the contract
  5. Third-party claims filed or reasonable evidence that a claim will be filed
  6. Reasonable evidence that the contract cannot be completed for the unpaid balance of the contract sum or a reasonable amount for retainage.

**Subcontractors Shall:**

1. Submit invoices or billing statements to the Prime Contractor's designated contact person in an appropriate format and in a timely manner. The format and the timing of billing statements shall be specified in the contract(s) between the Prime Contractor and the Subcontractor(s).
2. Notify MAG in writing of any potential violation of the prompt payment provision.

**MAG will implement appropriate mechanisms to ensure compliance with the requirements of all program participants.**

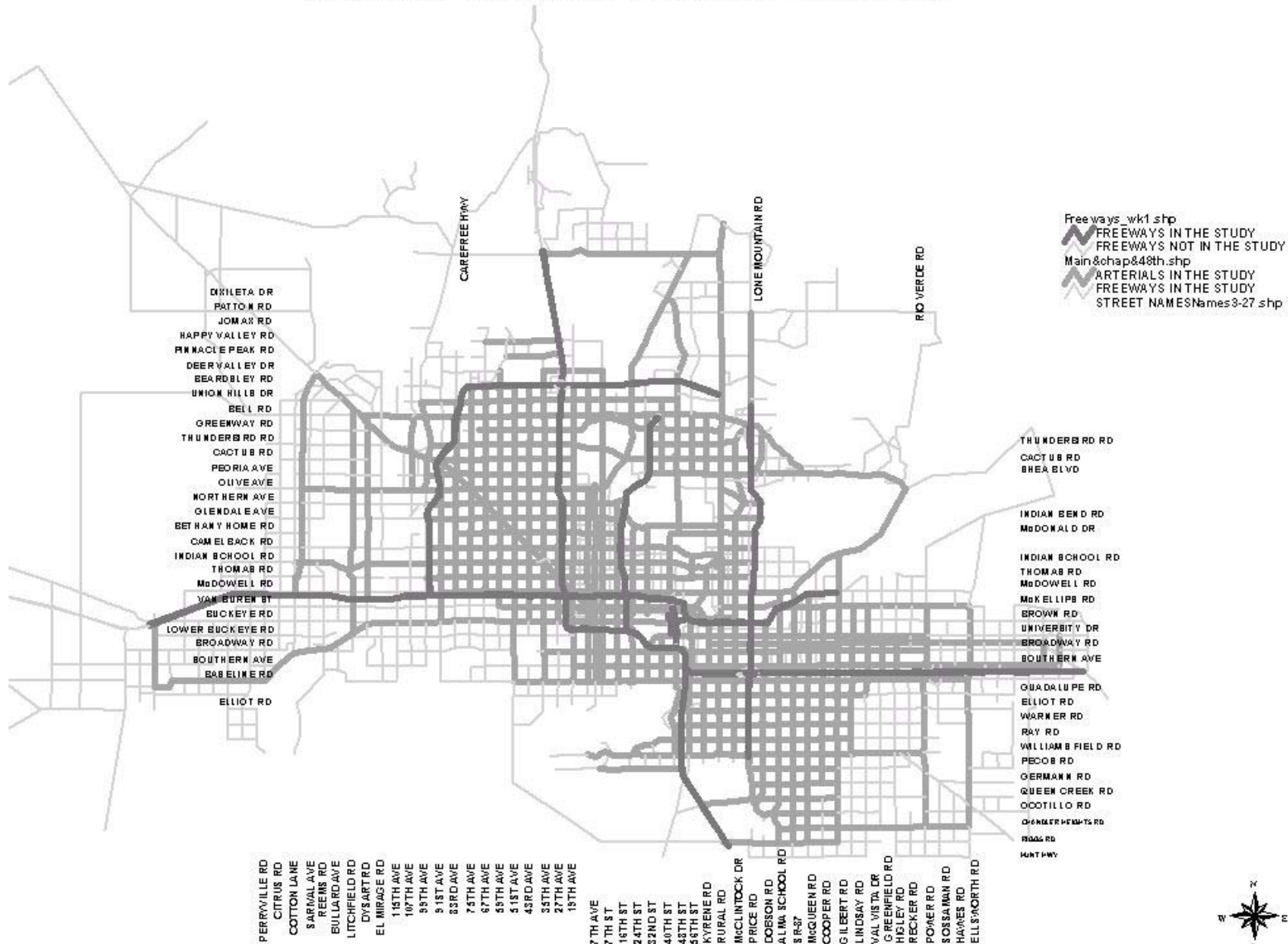
The mechanisms MAG may use, include, but are not limited to:

1. MAG will notify Subcontractors (DBE and Non-DBEs) of the Prime Contractor's responsibility for prompt payment and encourage Subcontractors to notify MAG in writing with any possible violations to the prompt payment mechanism.
2. Withholding payment from Prime Contractors that do not comply with the prompt payment provision noted above, where it has been determined by the MAG DBE Liaison Officer that delay of payment to the Subcontractor is not justified.
3. Stopping work on the contract until compliance issues are resolved.
4. Terminating the contract.

## **APPENDIX F**

### **ROUTE S**

## 2002 MAG REGIONAL TRAVEL SPEED STUDY



**ARTERIAL STREETS (MILES IN BOTH DIRECTIONS FOR EACH SECTION)**

S.NO	STREET NAME	START POINT	END POINT	MILES
1	MILLER RD	BASELINE RD	YUMA RD	9
2	COTTON LANE	I-10	ESTRELLA FWY/I-303	2
3	ESTRELLA FREEWAY/303	THOMAS RD	GRAND AVE	29
4	LITCHFIELD RD	COUNTY ROUTE 85	GRAND AVE	31
5	DYSART RD	I-10	BELL RD	25
6	107TH AVE	OLIVE AVE	BELL RD	10
7	99TH AVE	UNION HILLS DR	OLIVE AVE	12
8	91ST AVE	BUCKEYE RD	CACTUS RD	22
9	83RD AVE	I-10	UNION HILLS DR	26
10	75TH AVE	I-10	BEARDSLEY RD	27
11	67TH AVE	I-10	BEARDSLEY RD	26
12	59TH AVE	VANBUREN RD	DEER VALLEY RD	30
13	51ST AVE	BASELINE RD	BEARDSLEY RD	38
14	43RD AVE	LOWER BUCKEYE RD	BEARDSLEY RD	30
15	35TH AVE	BASELINE RD	DEER VALLEY RD	40
16	27TH AVE	BUCKEYE RD	NORTHERN AVE	14
17	19TH AVE	BASELINE RD	BEARDSLEY RD	39
18	7TH AVE(1)	BASELINE RD	OLIVE AVE	27
19	7TH AVE(2)	GREENWAY	BEARDSLEY RD	5
20	CENTRAL	BASELINE RD	MOUNTAIN VIEW RD	25
21	7TH ST	BASELINE RD	DEER VALLEY RD	42
22	16TH ST	BASELINE RD	NORTHERN AVE	24
23	24TH ST	BASELINE RD	GLENDALE AVE	22
24	32ND ST(1)	BASELINE RD	I-10	5
25	32ND ST(2)	HARRISON ST	LINCOLN DR	12
26	32ND ST(3)	SHEA BLVD	BELL RD	8
27	40TH ST(1)	BASELINE RD	UNIVERSITY DR	6
28	40TH ST(2)	PEORIA AVE	UNION HILLS DR	10
29	44TH ST	VANBUREN RD	MCDONALD DR	11
30	48TH STREET	CHANDLER BLVD	I-143	16
31	TATUM BLVD	MCDONALD DR	CAVE CREEK RD	33
32	56TH ST(1)	WILLIAMSFIELD RD	RAY RD	2
33	56TH ST (2)	SHEA BLVD	BELL RD	8
34	56TH ST(3)	THOMAS RD	CAMELBACK RD	3
35	PRIEST DR	RAY RD	VANBUREN ST	18
36	GALVIN PARKWAY	VANBUREN RD	MCDOWELL RD	3
37	64TH ST(1)	PEORIA AVE	BELL RD	8
38	64TH ST(2)	MCDOWELL RD	INDIAN SCHOOL RD	3
39	KYRENE RD	WILLIAMSFIELD RD	BASELINE RD	10
40	MILL AVENUE	BASELINE RD	I-202	8
41	RURAL RD	WILLIAMSFIELD RD	CURRY RD	18
42	SCOTTSDALE RD	CURRY RD	CAVE CREEK RD	59
43	MCCLINTOCK DR	CHANDLER BLVD	MCKELLIPS RD	20

S.NO	STREET NAME	START POINT	END POINT	MILES
44	HAYDEN RD	MCKELLIPS RD	I-101	26
45	PRICE RD	CHANDLER BLVD	QUEEN CREEK RD	7
46	PIMA RD	PRINCESS DR	DYNAMITE BLVD	12
47	DOBSON RD	OCOTILLO RD	I-202	27
48	92ND ST	SHEA BLVD	CACTUS RD	2
49	94TH ST	SHEA BLVD	FRANK LLOYD RD	4
50	ALMA SCHOOL RD	RIGGS RD	MCDOWELL RD	34
51	SR_87	RIGGS RD	PERALTA AVE	19
52	COUNTRY CLUB DR	PERALTA AVE	MCDOWELL RD	14
53	BEELINE HWY	MCDOWELL RD	SHEA BLVD	22
54	MCQUEEN RD	RIGGS RD	BASELINE RD	22
55	MESA DR	BASELINE RD	LEHI RD	11
56	COOPER RD	GERMANN RD	BASELINE RD	15
57	STAPLEY DR	BASELINE RD	MCKELLIPS RD	9
58	GILBERT RD	RIGGS RD	BEELINE HWY	39
59	LINDSAY RD	WILLIAMSFIELD RD	MCKELLIPS RD	20
60	VALVISTA DR	GUADALUPE RD	MCKELLIPS RD	12
61	GREENFIELD RD	BASELINE RD	UNIVERSITY DR	6
62	HIGLEY RD	BASELINE RD	UNIVERSITY DR	6
63	POWER RD	CHANDLER HEIGHTS	MCKELLIPS RD	30
64	ELLSWORTH RD	RIGGS RD	MCKELLIPS RD	30
65	IDAHO RD	US-60	APACHE BLVD	4
66	GOLDFIELD RD	SOUTHERN AVE	UNIVERSITY DR	4
67	RIGGS RD	I-10	GLIBERT RD	15
68	CHANDLER HEIGHTS	ELLESWORTH RD	ALMA SCHOOL RD	26
69	OCOTILLO RD	GILBERT RD	DOBSON RD	10
70	QUEEN CREEK RD	GILBERT RD	I-10	18
71	GERMANN RD	GILBERT RD	PRICE RD	12
72	PECOS RD(1)	DESERT FOOT HILLS PARK WAY	I-10	11
73	PECOS RD(2)	GILBERT RD	PRICE RD	12
74	WILLIAMS FIELD RD	GILBERT RD	POWER ROAD	12
75	CHANDLER BLVD	5TH AVE	GILBERT RD	34
76	RAY RD	CHANDLER BLVD	LINDSAY RD	30
77	WARNER RD	48TH ST	LINDSAY RD	24
78	ELIOT RD	32ND ST	LINDSAY RD	23
79	GUADALUPE RD	PRIEST DR	VAL VISTA DR	24
80	BASELINE RD	51ST AVE	ELLESWORTH RD	63
81	SOUTHERN AVE	19TH AVE	GOLDFIELD RD	66
82	BROADWAY RD	35TH AVE	POWER ROAD	52
83	APACHE BLVD	MILL AVE	IDAHO RD	45
84	UNIVERSITY DR	32ND ST	POWER RD	38
85	BUCKEYE RD	LITCHFIELD	SR-153	44
86	COUNTY ROUTE 85	LITCHFIELD RD	MILLER RD	33
87	CURRY RD	VANBUREN RD	MCCLINTOCK DR	4
88	ADAMS	27TH AVE	19TH AVE	2
89	WASHINGTON ST	19TH AVE	VANBUREN ST	15

S.NO	STREET NAME	START POINT	END POINT	MILES
90	JEFFERSON ST	27TH AVE	26TH ST	5
91	MCKELLIPS RD	SCOTTSDALE RD	ELLESWORTH RD	34
92	VANBUREN ST	59TH AVE	WASHINGTON ST	29
93	MCDOWELL RD	91ST AVE	COUNTRY CLUB	47
94	THOMAS RD	99TH AVE	PIMA FWY RD	42
95	INDIAN SCHOOL RD	COTTON LANE	PIMA FWY RD	62
96	CAMELBACK RD	I -101	SCOTTSDALE RD	38
97	CHAPARRAL	SCOTTSDALE RD	PIMA FWY RD	5
98	BETHANY HOME RD	83RD AVE	16TH ST/SR-51	20
99	MCDONAL DR	44TH ST	PIMA FWY RD	12
100	GLENDALE AVE	91ST AVE	18TH ST/SR-51	24
101	LINCON DR	32ND ST	SCOTTSDALE RD	14
102	INDIAN BEND RD	I-101	SCOTTSDALE RD	5
103	NORTHERN AVE	99TH AVE	SR-51	25
104	DOUBLETREE RANCH RD	SCOTTSDALE RD	PIMA FWY RD	6
105	OLIVE AVE	LOOP 303	35TH AVE	31
106	DUNLAP AVE	35TH AVE	7TH ST	8
107	CAVE CREEK RD	DUNLAP AVE	CAREFREE HWY	35
108	PEORIA AVE	99TH AVE	19TH AVE	20
109	SHEA BLVD	SR-51	BEELINE HWY	36
110	CACTUS RD(1)	91ST AVE	19TH AVE	18
111	CACTUS RD(2)	CAVE CREEK RD	PIMA FWY RD	17
112	THUNDERBIRD RD(1)	99TH AVE	CAVE CREEK RD	28
113	THUNDERBIRD RD(2)	SR-51	HAYDEN RD	12
114	GREENWAY RD	70TH AVE	SCOTTSDALE RD	34
115	BELL ROAD	LITCHFIELD RD	SHEA BLVD	63
116	UNION HILLS	99TH AVE	TATUM BLVD	35
117	BEARDSLEY RD(ONEWAY)	75TH AVE	27TH AVE	5
118	BEARDSLEY RD(ONEWAY)	75TH AVE	27TH AVE	5
119	DEER VALLEY RD	7TH ST	35TH AVE	8
120	PINNACLE PEAK RD	59TH AVE	I-17	7
121	HAPPY VALLEY RD	67TH AVE	I-17	10
122	CAREFREE HWY	SCOTTSDALE RD	I-17 JUNCTION	24
123	GRAND AVE	I-303	VANBUREN ST	48
	<b>TOTAL ARTERIAL MILES (BOTH DIRECTIONS)</b>			<b>2643</b>

**FREEWAY (MILES IN BOTH DIRECTIONS FOR EACH SECTION)**

S.NO	STREET NAME	START POINT	END POINT	MILES
1	I-101(1)	MCDOWELL RD	SCOTTSDALE RD	64
2	I-101(2)	WILLIAMS FIELD RD	UNION HILLS DR	48
3	I-10(1)	MILLER RD	SR-51	65
4	I-10(2)	SR-51	HUNTS HWY	42
5	SR-143	I-10	I-202	5
6	I-17(1)	CAREFREE HWY	DURANGO ST	52
7	I-17(2)	DURANGO ST	I-10	9
8	I-202	SR 51	GILBERT RD	33
9	SR-51	MCDOWELL RD	BELL RD	26
10	US-60	I-10	OLD WEST HWY	54
11	SR-153	VANBUREN ST	UNIVERSITY DR	3
12	SKY HARBOR BLVD	I-202	SR 143	1
<b>TOTAL FREEWAY MILES (BOTH DIRECTIONS)</b>				<b>402</b>

**HOV LANES (MILES IN BOTH DIRECTIONS FOR EACH SECTION)**

S.NO	STREET NAME	START POINT	END POINT	MILES
1	I-17	INDIAN SCHOOL	UNION HILLS DR	24
2	I-10(1)	83RD AVE	SR 51	25
3	I-10(2)	JUNCTION OF SR-51& I-10	RAY RD	28
4	I-202	JUNCTION OF SR-51& I-10	HAYDEN RD	18
<b>TOTAL HOV LANE MILES (BOTH DIRECTIONS)</b>				<b>95</b>

**SUMMARY OF TRAVEL MILES FOR THE STUDY**

TYPE	MILES
FREEWAYS	402
ARTERIALS	2643
HOV LANES	95
<b>TOTAL TRAVEL MILES FOR THE STUDY (BOTH DIRECTIONS)</b>	<b>3140</b>